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EXAMINER	
ROSENBERGER, FREDERICK F	
ART UNIT	**PAPER NUMBER**
2884	

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Please find below and/or attached an Office communication concerning this application or proceeding.

HB

Office Action Summary	**Application No.** 10/678,683	**Applicant(s)** RICH ET AL.
	Examiner Frederick F. Rosenberger	**Art Unit** 2884

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 November 2005*.
2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8 and 10-16* is/are pending in the application.
  4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1-8 and 10-16* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on *29 November 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.
  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
  Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  a)☐ All b)☐ Some * c)☐ None of:
    1.☐ Certified copies of the priority documents have been received.
    2.☐ Certified copies of the priority documents have been received in Application No. _____.
    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
  * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
  Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
  Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's reply, filed 29 November 2005, has been received and entered. Accordingly, claims 1, 6, 8, and 16 have been amended. Claims 9 and 17-20 have been cancelled. No new claims have been added. Thus, claims 1-8 and 10-16 are currently pending in this application.

2. The drawings were received on 29 November 2005. These drawings are acceptable.

Claim Objections

3. Claims 1, 8, and 16 are objected to because of the following informalities:

Applicant has amended claims 1 and 8 to include the limitation of the cell core width in combination with a thickness of the first window is substantially the same as the cell body width. However, as evident from applicant's disclosure (namely, Figures 1 and 3 in combination), it is the combination of the cell core width with the thickness of the first and second windows that is substantially the same as the cell body width. Claim 16 incorporates the new limitation of a cell core width substantially the same as the cell body width. Ambiguity is further noted in that claim 16 does not include the thickness of the first window at all. For the purposes of this Office action, it has been interpreted that the cell core width plus the thickness of both windows is substantially the same as the cell body width, in accordance with the specification. Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-6, 8, 10, and 12-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rich (US Patent # 5,693,944).

With regards to claim 1 and 8, Rich discloses a gas analyzer (Figures 12 and 13) comprising:

An IR radiation source **28** to emit a plurality of IR wavelengths (Figure 2);

A radiation detector **30** (Figure 2) capable of measuring the gas content based on IR absorption (column 1, lines 57-63);

A sample cell comprising hollow cylindrical left-hand and right-hand sections, **316** and **318** respectively formed on an integral platform **320** to form a cell body with a first flowpath (hollow bores **332** and **336** in Figures 12-14) and a cell core **314** secured between the left-hand and right-hand sections of the body with a second flowpath disposed therethrough, said second flowpath through the core comprising a central flowpath region **328**, a connecting region (right half region of flowpath **332**) to the input flowpath **332**, and a connecting region **334** to the outlet flowpath **336;**

And first and second optical apertures (**340** and **342**) with first and second polymer windows (**346** and **348**) adjacent to opposite ends of the central flowpath **328** to allow for infrared characterization of the gas content, with each window held in place via snap-in retainer rings (**350** and **352** respectively) displaced around each window section.

Rich is silent with regards to the sample cell core, in an unassembled configuration, being detached from the sample cell body. Rich is also silent with regards to the sample cell core being secured to the sample cell body when in an assembled configuration. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the sample cell core separate from the sample cell body, since it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art. In re Dulberg, 289 F.2d 522, 523, 129 USPQ 348, 349 (CCPA 1961) (The claimed structure, a lipstick holder with a removable cap, was fully met by the prior art except that in the prior art the cap is "press fitted" and therefore not manually removable. The court held that if it were considered desirable for any reason to obtain access to the end of [the prior art's] holder to which the cap is applied, it would be obvious to make the cap removable for that purpose.").

Rich is further silent with regards to the specific relation between the cell core width, the thickness of the first and second windows, and the cell body. Reference to Figures 12 and 13 show that the interior core region is substantially smaller than the U-shaped casing **322** of the cell body. However, the term “substantially” is often used in conjunction with another term to describe a particular characteristic of the claimed invention. It is a broad term. In re Nehrenberg, 280 F.2d 161, 126 USPQ 383 (CCPA 1960). The court held that the limitation “to substantially increase the efficiency of the compound as a copper extractant” was definite in view of the general guidelines contained in the specification. In re Mattison, 509 F.2d 563, 184 USPQ 484 (CCPA 1975). The court held that the limitation “which produces substantially equal E and H plane illumination patterns” was definite because one of ordinary skill in the art would know what was meant by “substantially equal.” Andrew Corp. v. Gabriel Electronics, 847 F.2d 819, 6 USPQ2d 2010 (Fed. Cir. 1988). In this case, applicant uses the term “substantially the same” for the relation between the cell core width in combination with the thickness of the windows and the cell body width. Absent direction from the specification, the terms have to be given their broadest reasonable interpretation. Thus, there are regions of the cell body that comprise a width that are substantially similar to the width of the cell core, such as the regions immediately to the left or right of the cell core (see Figure 14). The language of the claim does not specify the maximum or minimum cell body width, only a cell body width. In addition, applicant's own figures (see Figures 1-3, for example) show a non-uniform cell body width across the cell body length. As the broadest reasonable interpretation is given to the meaning of claims during examination, the cell core width in combination with the first and second windows would be substantially equal to the cell body width.

Further, with regards to Rich being silent about the specific relation between the cell core width, the thickness of the first and second windows, and the cell body, the change of the U-shaped casing to be substantially equal to the cell core would constitute a mere change in size. A change in size is generally recognized as being within the level of ordinary skill in the art. In re Rose, 105 USPQ 237 (CCPA 1955).

With regards to claims 2 and 14, Rich discloses first and second optical apertures (**340** and **342**) with first and second polymer windows (**346** and **348**) adjacent to opposite ends of the central flowpath **328**.

With regards to claims 3 and 12, Rich discloses the second flowpath through the core comprises a central flowpath region **328**, a connecting region (right half region of flowpath **332**) to the input flowpath **332**, and a connecting region **334** to the outlet flowpath **336,** thus forming a substantially “Z-shaped” configuration.

With regards to claims 4 and 13, Rich discloses a portion of the Z-shaped configuration adjacent to the first window (see Figure 14).

With regards to claims 5 and 15, Rich discloses that each window is held in place via snap-in retainer rings (**350** and **352** respectively) displaced around each window section.

With regards to claims 6 and 10, Rich is silent with regards to the sample cell core being mechanically retained by the snap-in retainer ring. Rich already discloses mechanical retention of components using a snap-in retainer ring (**350** or **352**) around an aperture (**340** or **342**) of the core region **314**. Given that any inserted core region would have to fit through the aperture, use of the snap-in retainer ring system to hold the core in place would have been obvious. Thus, it would have been obvious to a person having ordinary skill in the art to modify Rich to use the snap-in retainer ring to hold the inserted sample cell core in place in the sample cell body so as to minimize the amount of additional fastening techniques necessary in assembly of the completed sample cell.

With regards to claim 16, Rich discloses a method of infrared gas measurement comprising:

Drawing gas through a sample cell in the direction of arrow **330** (Figure 14; column 14, lines 15-28);

Emitting a plurality of IR wavelengths from the radiation source **28** (Figure 2) through a first optical aperture **340** in the sample cell;

Sensing a plurality of wavelengths from the radiation source **28** by a radiation detector **30** upon passing through the second passage;

Determining the content of the selected gas based on the infrared absorption measured by the detector (column 1, lines 57-63).

With regards to the specific structure mentioned in claim 16, Rich discloses said structure, as addressed above in the rejection of claims 1 and 8.

7. Claims 7 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rich (US Patent # 5693944), as applied to claims 1 and 8 above, and further in view of Clement (US Patent # 5256160).

Rich discloses all the limitations of the parent claims 1 and 8, as described above. However, Rich does not disclose any form of mechanical keying of the sample cell core to insure alignment between the flowpaths of the core and the body.

Clement teaches a disposable inline valve mechanism for use in biomedical applications, as illustrated in Figures 1-3. Clement discloses a body **12** with air flowpath **28** extending longitudinally through. Said body **12** is molded to include a cylindrical opening **40** intercepting the air flowpath **28** and capable of receiving a one-piece rotor **50**, with flowpath **64** disposed therethrough (column 6, lines 26-36). Said rotor **50** in a stationary position, wherein fluid communication between flowpaths **28** and **64** is achieved, is analogous to the inserted sample cell core of the claimed invention. Clement further teaches that the rotor **50**, once inserted into the body **12**, is mechanically retained in place via ridge **52** (reference Figure 3). Ridge **52** on the rotor **50** fits snug with a groove **54** on body **12**. This insertion method not only provides a means of retention of the rotor **50** to the body **12**, but also serves as mechanical keying of the rotor **50** to insure lateral alignment of the axes of the flowpaths **28** and **64**, as illustrated in Figure 3.

Thus, it would have been obvious to a person having ordinary skill in the art to modify Rich to include a mechanically keyed sample core as a means of circumventing labor intensive practices for insuring alignment of flowpaths, as taught by Clement.

Response to Arguments

8. Applicant's amendment of the drawings and claim 6 has successfully overcome the objections to the drawings and claim 6, as detailed in paragraphs 2-4 of the previous Office action.

9. Applicant's arguments filed 29 November 2005 have been fully considered but they are not persuasive.

Applicant primarily argues that Rich, as used in the rejection of independent claims 1, 8, and 16, does not satisfy the new limitation of a cell core width in combination with the thickness of the first window being substantially equal to the cell body width (see especially bottom of page 9 through top of page 10).

First, with regards to the use of substantially, as discussed in the rejection above, "substantially" has been held to be a broad term. Absent specific direction from the specification as to what constitutes widths that are "substantially the same", the terms have been given their broadest reasonable interpretation. As there are regions of the cell body that comprise a width that are substantially similar to the width of the cell core, such as the regions immediately to the left or right of the cell core (see Figure 14), then Rich does disclose a cell core width in combination with the first and second windows substantially equal to the cell body width. Reference is made to the rejection of claims 1 and 8 above for a more detailed argument.

Second, with regards to Rich being silent about the specific relation between the cell core width, the thickness of the first and second windows, and the cell body, the change of the U-shaped casing to be substantially equal to the cell core would constitute a mere change in size. A change in size is generally recognized as being within the level of ordinary skill in the art. In re Rose, 105 USPQ 237 (CCPA 1955). Applicant argues that changing that width would not be obvious as it would remove alignment walls necessary for the sensor head to properly mount. Since substantially has been held to be a broad term, changing the size of the walls does not necessarily eliminate the alignment walls completely in order to attain a width substantially equal to that of the core.

Third, the elimination of the U-shaped casing, as required for a cell body width exactly equal to the cell core width, does not necessarily destroy the functionality of the reference in terms of sensor head alignment. Additional alignment structures are provided on the device, in the form of the left and right edges of the cell core (see Figure 14), which could be used as mounting points for alignment of the sensor head. Elimination of the walls would not necessarily make it impossible for the sensor head to mount onto the sample cell. Rough alignment could be achieved manually, which may be sufficient for gas analysis depending on the application. It has been held that omission of an element and its function in a combination where the remaining elements perform the same function as before involves only routine skill in the art. In re Larson, 340 F.2d 965, 144 USPQ 347 (CCPA 1965) (Omission of additional framework and axle which served to increase the cargo carrying capacity of prior art mobile fluid carrying unit would have been obvious if this feature was not desired.)

Finally, with specific regards to claim 16, the method and the structural limitations of claim 16 have been addressed above. It is further noted that structural limitations in a method claim are entitled to weight in method claims only if the recited structure limitations affect the method in a manipulative sense, and not to amount to the mere claiming of a use of the particular structure. In this case, the particular structure of the sample cell does not affect the steps of the method, namely, drawing gas through the sample cell, emitting a plurality of IR wavelengths, sensing the wavelengths, and determining the content of the gas. Based on this interpretation, Rich would satisfy the method steps of claim 16, even if the structural limitations of the sample cell were to be considered absent from the disclosure of Rich.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frederick F. Rosenberger whose telephone number is 571-272-6107. The examiner can normally be reached on Monday-Friday 8:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on 571-272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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